DOCUMENT RESUME

ED 445 762 JC 000 712

TITLE	@ONE Summary Report: Faculty Instructional Technology Needs Assessment and Survey Results.
INSTITUTION	California Community Colleges, Sacramento. Office of the Chancellor.
PUB DATE	1998-06-00
NOTE	35p.
PUB TYPE	Reports - Descriptive (141)
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	*Community Colleges; *Educational Finance; *Educational Technology; *Faculty Development; Teacher Attitudes; Two Year Colleges
IDENTIFIERS	*California Community Colleges

ABSTRACT

This report presents the findings and recommendations from a survey conducted by the @ONE project, which is funded by the California Community Colleges' Chancellor's Office to enhance instruction and services through expanded uses of technology in the colleges. In order for California Community Colleges to be successful in instituting change regarding instructional technology, there must be a receptive faculty attitude, appropriate skills and knowledge, and sufficient institutional support that address obstacles to the effectiveness of these technologies. The @ONE Instructional Technology Survey findings indicate that faculty have positive attitudes regarding the potential for technology to improve instruction and that they are interested in learning how to use technology to reach instructional goals that benefit students. Findings support an investment in new training methods, utilizing existing structures such as flex days for training, and a need for discipline specific technology mentors. Findings also indicate that there are support issues within the colleges that must be addressed in order for an investment in faculty training and development to pay off. Recommends changes to the state budget so that colleges can provide ongoing technical and pedagogical support for integrating technology into instruction and services; improvement of student and faculty access to technology; continuous evaluation of the effectiveness of TMI to increase student access, learning, and achievement of desired outcomes in a cost-effective manner; and strategies for shared development through collaborative teams of faculty from colleges in the system, with resulting products made available to the system. Includes survey instrument in appendices. (VWC)

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ED 445 762

@ONE

SUMMARY REPORT

California Community College

Faculty Instructional Technology

Needs Assessment and

Survey Results

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June, 1998

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Faculty Instructional Technology
Needs Assessment and Survey Results

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The 4C@ONE Project is funded by the Technology and Telecommunications Program of the California Community Colleges Chancellor's Office, Grant # 96-0490.

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ACKNOWLEDGMENTS

The project staff and team would like to thank the campus contacts at each of the participating institutions who aided in the survey implementation. We would like to thank those "pioneers" in instructional technology who contributed time and expertise during the interview phase of the needs assessment. In addition, we very much appreciated the consultation provided by Jack Friedlander from Santa Barbara City College during the course of the needs assessment.

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Introduction

The @ONE project is funded by the California Community Colleges' Chancellor's Office to enhance instruction and services through expanded uses of technology in the colleges. During its first year, 1997-98, the project team conducted a statewide needs assessment designed to identify instructional technology training needs and institutional impediments to the integration of technology into instruction. The needs assessment was a three step process which included virtual Focus Groups, Interviews on Effective Practices with practioners of technology mediated instruction and the @ONE Instructional Technology Survey, a statewide survey of full-time and part-time faculty. The purpose of this report is to summarize the results of the survey and make recommendations based on the data collected during the needs assessment process.

Executive Summary

Maximizing the potential that technology offers community college instruction and services requires a shift in pedagogy, structure, roles and funding within the California Community Colleges. The potential for technology enhanced instruction to be more responsive to student needs can be realized through a comprehensive approach that addresses system leadership, institutional supports and faculty preparation.

Findings

In order for the colleges to be successful in instituting change regarding instructional technology, the project team believes that there must be a receptive faculty attitude, appropriate skills and knowledge, and sufficient institutional supports that address obstacles to the effective use of these technologies. Survey findings indicate that faculty have positive attitudes regarding the potential for technology to improve instruction and that they are interested in learning how to use technology to reach instructional goals that benefit students. Yet faculty skills are widely diverse with the largest percentage having low skill levels in many of the successful uses of technology identified in Effective Practices Interviews. Findings support an investment in new training methods, utilizing existing campus structures such as flex days for training, and a need for discipline specific technology mentors. Findings also indicate that there are support issues within the colleges that must be addressed in order for an investment in faculty training and development to pay off.

The prominent themes which emerged in the focus groups concerning reasons why faculty have not integrated technology into instruction were confirmed by the results of the @ONE Instructional Technology Survey (see figure 7, Faculty Appraisal of Institutional Supports).
They were:

- lack of time and/or compensation,
- concern about student access to technology,
- lack of faculty access to technology, and
- lack of technical support.

Interviews with faculty, trainers, and administrators about institutional impediments indicate a shared concern: *the State budget is not designed to accommodate changes that technology brings. Traditional instruction is funded but there is no money in the revenue stream to meet priorities* such as:

- Upgrading equipment
- Providing faculty with adequate hardware and software
- Providing faculty the time to meet the challenges of changing pedagogy
- Providing increased lab and technology access for students
- Investing in infrastructure such as: web master, computer support staff, instructional designer, instructional technologist, training of computer lab tutors.

A majority of faculty in the @ONE Instructional Technology Survey believe technology will allow them to more effectively address multiple learning modalities and experienced practitioners show an interest in increasingly more sophisticated applications of technology to serve the diversity of our college population. However, 82% cite lack of access to equipment, for faculty and students, as an impediment to their ability to integrate technology into their instruction. Less than twenty percent of the faculty reported their college as having sufficient technical support, faculty compensation or load considerations for development and delivery of technology mediated instruction,[1] adjunct faculty compensation for participation in training, student email accounts and/or adequate budgets for software.

Policy Implications

The @ONE Instructional Technology Survey points to a number of issues with which campuses have been struggling and these results have implications for public policy. Changing workload of faculty, new roles necessary to support technology mediated instruction, and sufficient infrastructure must be addressed before the California Community Colleges and their students will reap the benefits of technological advances. In fact, unless these issues are addressed, training community college faculty may only create frustration. Technology has already outstripped the colleges' capacity to provide technical network support, and support staff and faculty pioneers in technology mediated instruction are overextended. The role of the system should be to help campuses identify and incorporate the most effective models of design, implementation, and ongoing support for instructional technology.

Prevalent themes that faculty do not have the needed time for development or have experienced an increased workload when implementing TMI have implications for new strategies that support the instructor and student. There is a need for leadership and guidance regarding best practices and training models that support them.

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[1] Technology Mediated Instruction (TMI) is defined in the Academic Senate *Guidelines for Good Practice: Technology Mediated Instruction* as "using various devices to assist in the teaching and learning process." In this report instructional technology and technology mediated instruction are used interchangeably.

There also are implications for the model that has individual faculty as developers and content providers. Because of the tremendous time and variety of skills needed for development, it is imperative that there be professional staff to take on some of the roles and to support design, development and use of TMI. Because of the expense involved in such development, there are potential efficiencies in the shared development and use of curriculum and materials among colleges, as well as for strategic partnerships with content providers (i.e., publishers).

As more and more students who are technologically literate come to campus, there is an increased expectation that they will have access to email and the Internet. Yet the level of funding in the California Community Colleges in comparison to UC and CSU systems does not support widespread Internet access for those students who often have the least resources available to them outside of the classroom. The @ONE Instructional Technology Survey indicates that this inequity has serious implications for the largest number of entering college students in the State, students who need this experience with technology to function well in California's workforce. We believe that the future return on investment in a functioning technology infrastructure will be that students complete their studies in less time with less demands on facilities, and are better prepared for the workforce, university and life-long learning.

Recommendations

The @ONE project team and Advisory Committee recommend:

1. Changes to the state budget so that colleges can provide on-going technical AND pedagogical support for integrating technology into instruction and services. This on-going funding should cover:
   - Support for faculty to develop and integrate Technology Mediated Instruction (TMI), including a fund for release time for faculty to develop TMI materials and strategies.
   - Staff to assist in the design, development, and delivery of TMI, e.g., instructional designer, instructional technologist, student technical support, etc.
   - Technical support staff to manage and develop the technical infrastructure, e.g., Web master, network managers, computer laboratory coordinators, computer repair/maintenance technicians, help desk staff.
   - Teaching Assistants and tutors for computer laboratories.
   - Training on effective strategies for using TMI and support for both full time and part time faculty participation in training. Professional staff to develop and deliver faculty training. Stipends for technology mentors in each instructional department to aid faculty in specific discipline applications.

2. Addressing student access to technology through:
   - Strategies that ensure all students acquire the skills needed to complete computer-based course assignments.
   - Funds and strategies that provide all students with easy access to computers needed to complete course work.
   - Funds and strategies that support student access to the Internet and to email both on and off campus

3. Addressing faculty access through:
   - Email accounts and Internet access for faculty
   - Funding and strategies that provide current hardware and software for faculty and departments.

4. Continuous evaluation of the effectiveness of TMI to increase student access, student learning, and achievement of desired outcomes in a cost effective manner.

5. Strategies for shared development through collaborative teams of faculty from colleges in the system, with resulting products made available to the system.

@ONE data indicates that the system needs to make funding for the transition to technology enhanced instruction a priority in the California community colleges. While the initial expenditures of establishing campus infrastructures of equipment, support staff, and training are significant, building a solid foundation during this transition phase will yield high returns in the quality of education. We believe that a well planned infrastructure, a well trained faculty, and an increased number of computer literate students enrolling will mean reduced costs for maintaining and upgrading equipment and upgrading faculty skills within the near future. If, however, the system does not adopt a coherent, comprehensive approach, community college students will not be as well prepared academically or for the workforce as their UC and CSU counterparts.

Methodology

Survey Development

During the needs assessment process, the @ONE project conducted Focus Groups and Effective Practices Interviews to gain qualitative data and to determine the range of questions for the @ONE Instructional Technology Survey. The *@ONE Report on Effective Practices in TMI* provides a full report on these first two steps of the needs analysis research. The short survey and small discussion groups at six campuses, dubbed "virtual focus groups," addressed what technologies would be most meaningful to community colleges in coming years, what measurements should be tracked to determine that instructional technology is effective, and what the reasons are that faculty do not integrate technology into instruction. An attempt was made to include full-time and part-time faculty, technology users and non-users, from diverse disciplines. For questions used in the focus groups, see Attachment C.

Building on the focus groups, the interviews investigated Effective Practices in the following technologies:

- the Internet/WWW and e-mail to supplement classroom instruction;
- on-line courses;
- use of multimedia in classroom to enhance presentations; and/or
- self paced tutorials to supplement instruction.

The @ONE team conducted interviews with faculty, trainers and administrators at UC, CSU and CCC campuses. Criteria for program selection included:

- Reputation for effective program and/or recognition such as grants, conference presentations or publications.
- At least one year in operation, so that there had been performance outcomes.

For the list of interview questions, see Attachment B.

Survey Sample

Twenty-one community colleges (approximately 20%) were selected to participate in the survey. The ten consortium colleges were included plus eleven others in order to balance characteristics of size, student demographics, geographic location and rural, urban and suburban designations as per the Chancellor's Office Research Unit break down supplied in November, 1997.

The faculty sample at each of the colleges was chosen by using the Winter/Spring 1998 schedule of classes, and selecting every tenth instructor listed. This provided a faculty sample which included all disciplines, day and night classes, full and part-timers. The demographics of the responders are very close to the Chancellor's office data on faculty demographics from the Report on Staffing and Salaries, Fall 1996 (latest data available). The gender and ethnicity is within 2.5%, and age varies between 1-4% in each of the three categories. See the summary data on faculty demographics.

Response Rate

A total of 3072 surveys were distributed and 1444 were returned, *a response rate of 47%*. It is possible that those who responded are faculty who have more interest in technology than those who did not respond.

Survey Implementation

A designated contact on each campus distributed surveys and follow-up reminders. Survey respondents returned completed surveys to the contact, who then returned the surveys to the @ONE staff.

Summary Data

Demographics of Survey Sample

@ONE Instructional Technology Survey

As stated in the Methodology section, the demographics of the respondents of the survey are very close to the demographics of faculty in the system as per the latest data available from the Chancellor's Office Accountability Unit, Policy Analysis and Management Information Services Division in October 1997, which is the Report on Staffing and Salaries, Fall 1996.

Gender

The @ONE survey sample had a slightly higher percentage of women respondents than is represented in the Chancellor's Office data. The composite of both full-time and part-time faculty in the sample was 52% male and 48% female.

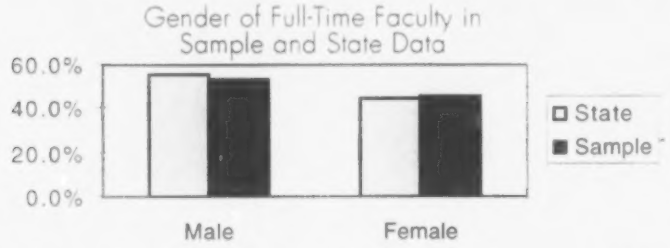

Figure 1a. Gender of full-time faculty in survey sample compared with Chancellor's Office statistics.

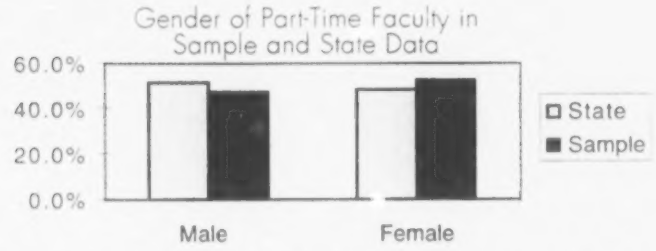

Figure 1b. Gender of part-time faculty in survey sample compared with Chancellor's Office statistics.

Age

In age, the full time faculty in the @ONE sample were slightly younger as indicated by 4% less in the over 50 years category, but slightly older in the part time faculty category as indicated by 3% more in the over 50 years group. The composite sample of both full-time and part-time faculty in the sample was10% under 35 years old, 42% betweem 36 and 50 years old, and 48% over 50 years old.

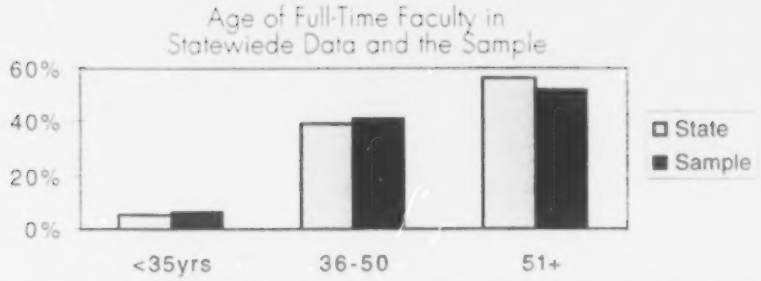

Figure 2a. Age of full-time faculty in survey sample compared with Chancellor's Office statistics.

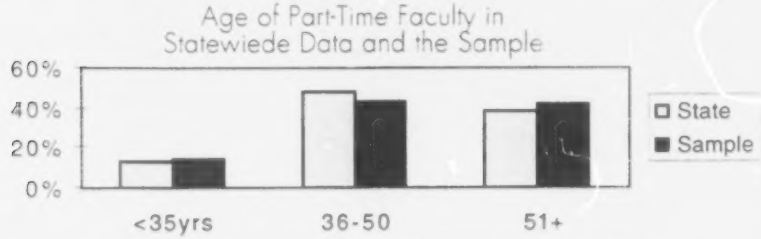

Figure 2b. Age of part-time faculty in survey sample compared with Chancellor's Office statistics.

Figure 3. Years of teaching experience in community colleges

Ethnicity

The @ONE faculty sample had slightly more ethnic diversity than the Chancellor's office statistics by approximately 2%. The slightly more diversity and slightly younger full time faculty may be indicative of trends in retirements and new hires since the Chancellor's Office staffing data was collected in Fall 1996.

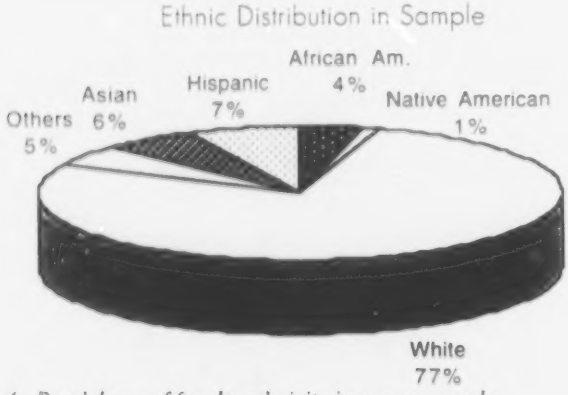

Figure 4. Breakdown of faculty ethnicity in survey sample.

Full-Time, Part-Time Status

The breakdown of full-time and part-time faculty in the survey sample closely reflects the percentage of instructional hours taught by each group, rather than the numbers of faculty in the system.

Figure 5. Percent of full time and part time faculty in the survey sample.

Users of Technology

When we looked at whether specific groups could be characterized as users of technology, we found that the use of email and the Web for any purpose can be separated from other uses of technology (such as computer tutorials, simulations and multimedia presentations). Faculty who are under 35 years of age report a 9% - 15% higher rate of use of email for communication with colleagues or students and instructional web sites than do faculty who are over 50 years of age. However, age does not seem relevant to the use of simulations, computer tutorials and multimedia, where use is the same or even slightly higher in older age groups.

There is not a dramatic difference in use by gender, although males use e-mail and Web sites at a slightly higher rate than females (up to 6% more). However slightly more females develop instructional units that require students to use the Internet or multimedia. More females use computer tutorials, while more males use simulations, but these differences may be driven by discipline.

Skill levels for part-time faculty are slightly higher than those of full-time faculty in most applications of technology. However, part-time use rate is lower, perhaps indicating lack of access to equipment or lack of time and compensation for course development.

The numbers of faculty in ethnic categories were not large enough to make meaningful generalizations.

Of interest to the colleges, is that 94% of faculty respondents own a computer or intend to buy one.

Faculty Attitudes Regarding Technology

As the table below indicates, faculty believe that technology will positively impact instruction, teaching and learning in a variety of ways. To varying degrees, 94% of faculty believe that learning to apply technology to instruction is part of their job. The implication for faculty training in instructional technology is positive.

To what extent do you think that:	Much/ very much	Somewhat	Not at all	No opinion
increasing your ability to apply technology to your instruction is part of your job?	65%	29%	5%	1%
the use of technology will change the way I teach academic courses within the next five years?	59%	37%	3%	1%
electronic bulletin boards are useful tools for providing information on training opportunities, exchanging ideas with fellow faculty members, or for posting of questions of interest to community college instructors?	59%	29%	5%	7%
the use of technology will enable you to design activities that increase students' ability to analyze, use, and apply information to new situations?	56%	34%	7%	3%
the use of technology will enable you to design activities that increase students' retention of information?	53%	34%	8%	5%
the use of technology will enable you to provide your students with individualized feedback?	53%	33%	11%	3%
the use of technology will enable you to reach more students?	51%	35%	11%	3%
the use of technology will enable you to address individual student interests more effectively?	50%	38%	9%	3%
the use of technology will enable you to address the different learning styles of your students more effectively?	48%	40%	9%	3%
the use of technology will enable you to provide students with more real life simulations?	47%	34%	14%	5%

Figure 6. Faculty perceptions of the impact of technology in descending order of percent of faculty rating much or very much.

Faculty Appraisal of Institutional Supports for Instructional Technology

The survey results support the qualitative data collected during focus groups and interviews regarding issues that may impede the integration of technology into instruction. As the table below shows, a majority of faculty (over 50%) indicated that their campuses do not have sufficient technical support, do not provide adequate equipment for students or faculty, and offer few faculty incentives for development of course materials. In addition to the categories below, faculty were asked to respond to the question "To what extent do you think that lack of access to appropriate equipment at your community college is an impediment to your ability to integrate technology into your classes?" Fourteen percent (14%) responded "not at all," 23% responded "somewhat," and 59% responded "much/very much."

Theses results suggest that currently the California Community Colleges cannot support campus wide integration of TMI. In addition, the "don't know" responses suggest that a fairly high percentage of faculty (a 13% - 37% range) are not informed about the support structures in place on campus. Part time faculty consistently represented a larger number of "don't know" responses than did the full time faculty in this section of the survey. For only full time faculty, the "disagree" response is a consistently higher percentage.

Survey Item	Agree	Disagree	Don't Know
There are a sufficient number of computers in classrooms and computer labs available to meet student needs.	21%	63%	16%
At my college, the extra amount of time spent by and instructor on instruction related activities (such as answering e-mail messages, posting notes on a bulletin board or maintaining a current Web page) is taken into course-load allocation.	3%	62%	16%
My department has an adequate budget to purchase software which enhances instruction.	14%	59%	27%
At my college, faculty are compensated for time spent in developing and incorporating technology into their curriculum.	10%	57%	33%
My college provides all students with e-mail account.	8%	56%	36%
At my college, there is sufficient technical computer support available to meet faculty needs.	20%	55%	15%
At my college, computers sufficient for faculty needs are available in faculty offices.	36%	51%	13%
At my college, adjunct faculty are compensated, financially or otherwise, for attending technology training related to their instructional field.	14%	49%	37%
My department has it own technology plan to which I was encouraged to give input.	35%	47%	18%
My college has a well developed campus-wide, coherent technology plan.	27%	43%	31%
At my college, equipment necessary to produce multimedia presentations is available and accessible to the faculty.	42%	42%	16.1%
At my college, software is regularly updated as needed.	26%	39%	35%

Figure 7. Faculty appraisal of whether institutional supports for instructional technology are in place on their campus. Disagree includes responses for somewhat disagree. Agree include response for somewhat agree. The survey items are listed in descending order of the number of faculty who disagreed that the specified support for instructional technology was in place.

Faculty Use of Technology and Skill Levels

Faculty rated each of fifteen different instructional applications of technology for:

- its importance to instruction,
- their personal use and
- their skill level.

The highest percent of faculty rated technology that helped them lecture as most important to instruction, perhaps indicating a lack of familiarity with usefulness of other technology applications or a preference for traditional teaching techniques. Although many of the good practices, as seen in the chart following this one, have students actually using the technology (multimedia presentations and email for group work), faculty rated these items low in importance to instruction.

The ratings suggest that the perceived importance to instruction is a higher indicator of whether faculty use a technology application than is their skill level. Roughly 43% of faculty have used multimedia to enhance lectures. Only 30% use email to communicate with students, although skill levels indicate sufficient skill, and 8% encourage students to use email for group work.

The highest uses are for professional development activities—exchanging information with colleagues (52%) and web as a research source for the discipline (51%).

See table on the next page

Faculty Use of Technology and Skill Levels
(continued from the previous page)

Items are listed in order of Importance to Instruction as rated by faculty.	Use	Skill Level		
		Minimal	Adequate	Proficient/ Expert
I use multimedia such as CD-ROM, videos, and PowerPoint/Persuasion presentations to make class lectures more interesting.	43%	40%	32%	28%
I use the web to stay informed of changes withing my discipline.	51%	33%	34%	33%
I use e-mail to exchange information with my colleagues.	52%	25%	35%	40%
I use the Internet to locate sites that might be of interest to my students.	44%	33%	33%	34%
I create course specific computer activities for the students.	31%	42%	28%	30%
I use computer tutorials to reinforce instruction.	53%	33%	11%	3%
I use computer simulations to provide students with interactive learning environments and/or problem solving opportunities.	21%	52%	27%	21%
I develop instructional units that require students to use the Internet.	50%	38%	9%	3%
I use a web site to post syllabi, assignments, and notes for my students.	8%	64%	20%	16%
I use e-mail for personal communication with students.	30%	29%	33%	38%
I maintain a web site for my class	10%	68%	18%	14%
I assign student projects that require the integration of multimedia for their presentations.	16%	53%	28%	19%
I use web-based message boards to post students' e-mail to questions of general interest for class.	4%	65%	21%	14%
I encourage students to use e-mail for group work.	8%	46%	31%	23%
I offer on-line courses.	2%	75%	14%	11%

Figure 8. Faculty self assessment of use and skill level in technology applications. These items are ranked by the perceived importance to instruction with the highest "very important" survey item first.

Use of Good Instructional Practices

Low percentages of faculty use many of the technology applications that enhance instruction as documented through @ONE Effective Practices Interviews and the Academic Senate's *Guidelines for Good Practice:Technology Mediated Instruction*. Using the Web and e-mail as a way for students to communicate with each other received the lowest use ratings, at 4% and 8% respectively, indicating that few faculty see the potential of using technologies to promote student collaboration.

Currently, a significant percentage of faculty do not use applications documented as effective ways to implement good practices, perhaps because they do not fully understand the instructional potential of the application. This suggests that training should not only link instructional technologies to pedagogical goals and practices, but that the focus of the training should be on the pedagogical advantages of a particular technology.

Survey Item	Use	Good Practices Addressed
I use computer simulations to provide students with interactive learning environments and/or problem solving opportunities.	21%	• Promotes active learning • Provides prompt feedback • Respects diverse talent and modalities • Communicates high expectation • Promotes quality time on task *Can be designed to:* • Develop reciprocity among students
I create course specific computer activities for the students.	31%	• Promote effective contact between teacher and student • Promotes active learning • Provides prompt feedback • Respects diverse talent and modalities *Can be designed to:* • Communicate high expectation • Develop reciprocity among students • Provide quality time on task
I assign students' projects that require the integration of multimedia for their presentations.	16%	• Promotes active learning • Respects diverse talent and modalities • Communicates high expectation • Promotes quality time on task *Can be designed to:* • Effective contact between teacher and student • Develop reciprocity among students • Provide prompt feedback
I develop instructional units that require students to use the Internet.	22%	• Promotes effective contact between teacher and student • Promotes active learning • Provides prompt feedback • Communicates high expectation *Can be designed to:* • Respect diverse talent and modalities • Develop reciprocity among students • Provide quality time on task
I encourage students to use e-mail for group work.	8%	• Promotes active learning • Provides prompt feedback • Communicates high expectation • Develops reciprocity among students

Survey Item	Use	Good Practices Addressed
I use e-mail for personal communication and student with students.	30%	• Promotes effective contact between teacher • Promotes active learning • Provides prompt feedback *Can be designed to:* • Respect diverse talent and modalities • Provide quality time on task
I use computer tutorials to reinforce instruction.	28%	• Promotes active learning • Provides prompt feedback • Promotes quality time on task *Can be designed to:* • Respect diverse talent and modalities • Effective contact between teacher and student
I use web-based message boards to post students' e-mail regarding questions of general interest for class.	4%	• Promotes effective contact between teacher and student • Provides prompt feedback • Communicates high expectation *Can be designed to:* • Provide quality time on task
I use multimedia such as CD-ROM, videos, and PowerPoint/Persuasion presentations to make class lectures more interesting.	43%	• Promotes effective contact between teacher and student *Can be designed to:* • Encourage active learning • Respect diverse talent and modalities • Develop reciprocity among students • Provide quality time on task

Figure 9. Faculty use of instructional technology applications based on good practices. This chart represents our attempt to organize our data on use based on the potential for good practice cited in the Academic Senate's "Guidelines for Good Practice," and the interviews that were conducted during the needs assessment.

Training Frequently Available on Campuses

Overall, training in basic applications of technology is available to a large percentage of faculty. The training that was apparently least available on campuses, discipline specific applications of technology, is the training of highest interest to faculty (as indicated in the Training Preferences section) and has high potential for promoting good practices in instruction (as the former chart shows). This suggests that campuses need to transition from basic skills development for faculty to training faculty in ways to use technologies to enhance instruction. As these charts suggest, faculty are not being trained to use available resources to help them more effectively meet pedagogical goals. For example, although over 65% have training in e-mail, fewer than 40% percent are shown how to use group addressing (and probably even fewer are shown how to effectively form groups to promote successful student discussion or collaboration).

There were significant differences in campuses regarding the availability of training, with three campuses reporting very little training. At one third of the colleges in the sample, training is either not well advertised or is available to only certain departments or locations, since 40-60% of respondents reported that the training is available and the remainder that it is not.

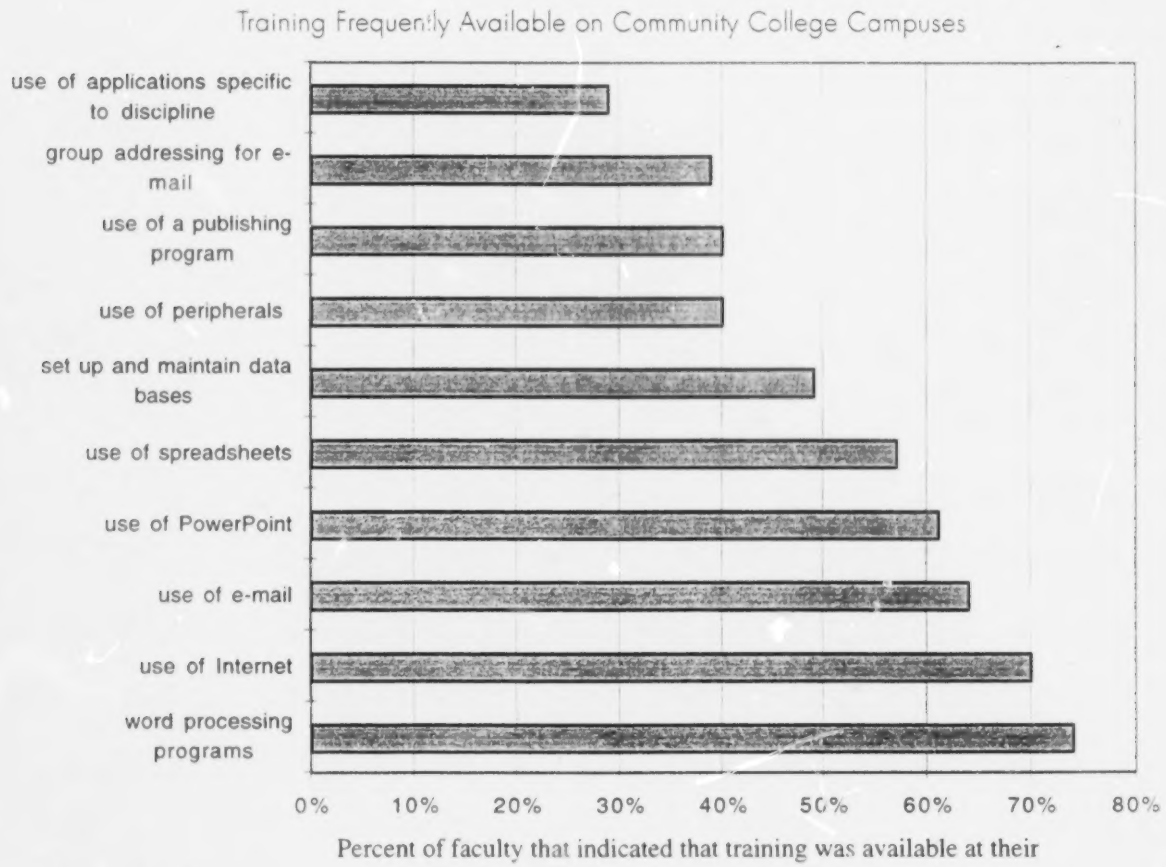

Figure 10. Percent of faculty indicating that training in the stated technology application is frequently available to faculty and staff at their campus.

Training Interests

A majority of faculty, both full-time and part-time, indicate high interest in attending training in how to use technology to improve instruction and student learning. One implication is that the most effective training models would be explicitly linked to student needs and student outcomes.

I would be interested in attending training on:	Very Interested	A Little Interested	Not Interested
How to use technology to increase students' retention of information.	61%	31%	8%
How to use technology to address different learning styles.	57%	33%	10%
Hot to use technology to integrate higher level thinking skills into instructional practices.	57%	32%	11%
How to design computer-aided instruction and/or for my classes.	57%	30%	13%
How technology can be used to facilitate small group activities and teamwork among my students.	55%	32%	13%
How to integrate computer simulations specific to my discipline into classroom instruction.	55%	30%	16%
How to use technology to individualizeinstruction based on student interests.	53%	35%	12%
How to incorporate commercially available multimedia products into my classroom instruction.	51%	35%	13%
How to design and integrate multimedia presentations such as Power-Point, CD-ROM clips and video into my classroom intruction.	52%	33%	15%
How technology can be used to increase the scope and depth of student research.	52%	33%	15%
How to design classroom activities that require students to use various technology tools in completing their assignments.	48%	35%	17%
How to convert a course I currently teach into an on-line course.	37%	26%	37%

Figure 11. Faculty training interests presented in order of highest to lowest interest.

Designing an on-line course received the highest "not interested" response—37%. However, data suggests that those faculty who already encourage the use of email for students' group work or use a web site to post assignments and syllabi are much more likely (60%) to be interested in learning how to convert a current course to an online course. This suggests that training in the instructional uses of email and the uses of web sites plays a readiness role for preparing faculty for a transition to online teaching.

Training Preferences

Faculty were asked to rate training options in terms of their preference. Faculty most preferred training delivered by a community college faculty member with demonstrated success in the discipline and one-on-one training provided by a mentor. While the chart shows that faculty are interested in hands-on training and discipline specific training, only a minority believe that such training would be effectively delivered electronically via on-line courses or video conferencing.

	Preferred	**Acceptable**	**Unacceptable**
Training by CC faculty who effectively use technoloty in my discipline.	57%	39%	4%
One-on-one training by a mentor.	57%	37%	6%
Demonstration of effective uses of instrucitonal technology specific to my descipline.	55%	39%	9%
Hands-on training that requires developmentof a relevant product, such as a Web site, and instructional unit incorporating technology, etc.	52%	39%	9%
Training by an experienced trainer with depth of knowledge in instructional technology.	50%	44%	6%
Consultation with a content expert who has incorporated technology into his or her instruction.	45%	49%	6%
Demonstration of effective uses of instructional technology.	34%	57%	9%
Training via a web-based on-line course.	13%	49%	38%
Training via video conferencing.	9%	42%	49%

Figure 12. Faculty preferences regarding training methodology.

Follow-up Support for Training

As a follow up to support training, consultation with an expert was most preferred at 42% and 52% acceptable rating. Next was peer support and problem solving group. As a follow up, Internet chat room with others who attended training was not preferred, and 33% said it was unacceptable.

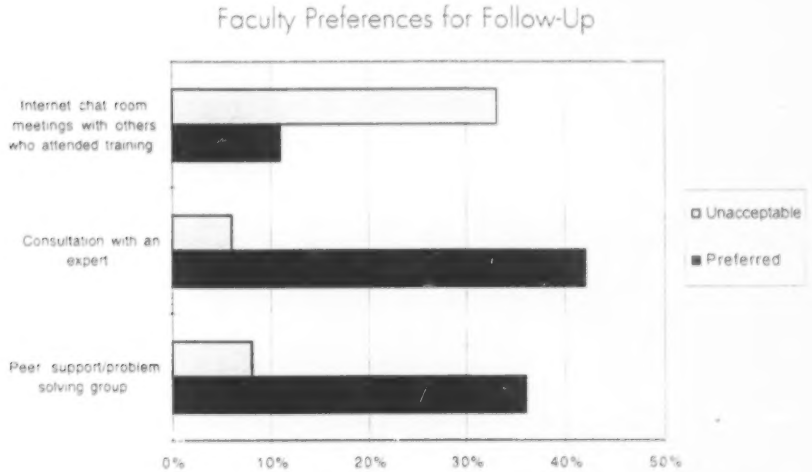

Figure 13. Percent of Faculty indicating preferences for follow-up support after training. "Acceptable" rating (over 50% for each item) was seen as a neutral response and on this graph was removed to better see preferred and unacceptable patterns.

Training Logistics

The faculty indicate a strong preference for using already established campus structures, such as flex days, for training. They prefer half day as opposed to full day sessions. Even part time instructors did not want weekend and evening training.

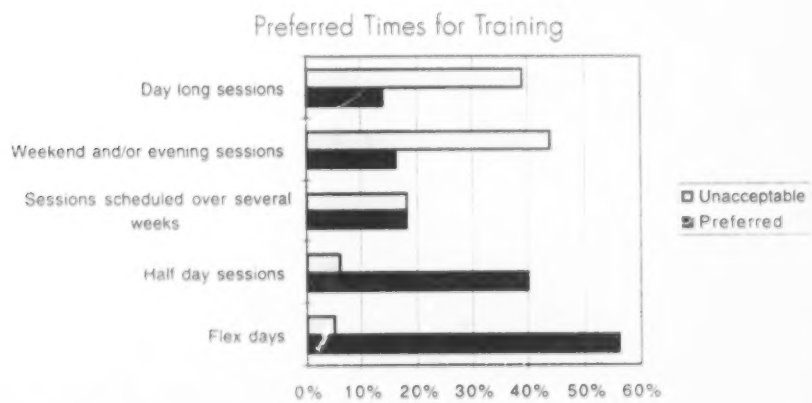

Figure 14. Percent of Faculty indicating preferences for training schedule. "Acceptable" rating (from 39-64%) was seen as a neutral response and on this graph was removed to better see preferred and unacceptable patterns.

Travel

Fifty three percent prefer not to travel more than 30 miles. For many in the state this distance would be within district.

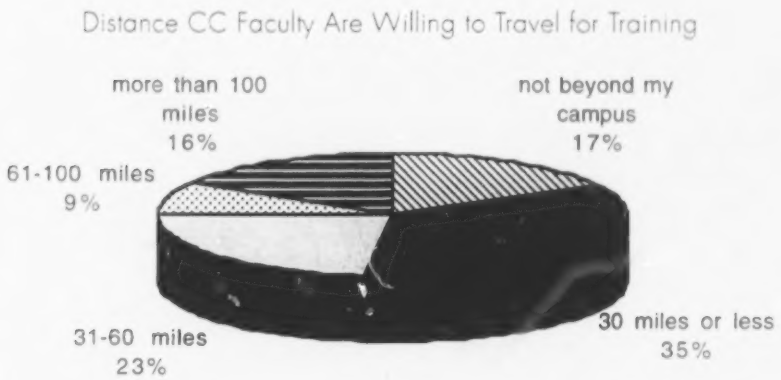
Distance CC Faculty Are Willing to Travel for Training
more than 100 miles 16%
not beyond my campus 17%
61-100 miles 9%
31-60 miles 23%
30 miles or less 35%

Figure 15. Percent of faculty willing to travel stated distances for training of interest to them.

Implications

The implications of the training preferences and logistics data indicates that supporting local staff development efforts should be part of a state training plan. In addition, strategies that develop technology mentors in a variety of disciplines on each campus would be an effective approach to aiding faculty to implement TMI to improve student outcomes.

Next Steps

The @ONE project has been charged with development of a statewide training plan that will support expansion of technology to enhance instruction and services on the California Community Colleges. Elements of the plan will be piloted in the 1998-99 academic year.

Further Research

Further research and or additional data collection would contribute to the California Community College System's understanding of issues that impact the colleges during the transition to technology mediated instruction. The research questions and topics are:

1. What are the costs of implementing technology mediated instruction on campuses? Identify variables, including support needed. Target specific TMI, such as online delivery.
2. What are the faculty and staff workload implications of a shift to TMI? Identify effective models that include support personnel.
3. What is the impact of TMI on student outcomes and student levels of technical competence?
4. What are the expectations of the following interest groups regarding the potential benefits of instructional technology: students, faculty, administrators, legislators, business?
   What types of assessment/evaluation could be used to measure whether these expectations have been met?
5. Identify the experts within the system (including faculty, administrators and staff) who can contribute to the knowledge base or act as mentors.

Attachment A

List of community colleges participating in the 1998 @ONE Instructional Technology Survey:

Butte College
City College of San Francisco
College of the Canyons
College of Marin
De Anza College
East Los Angeles College
Fresno Fresno City College
Hartnell College
Las Positas College
Long Beach City College
Los Angeles Trade-Tech College
Mt San Jacinto College
Napa College
Santa Barbara City College
Santa Monica College
Santa Ana College
San Diego Miramar College
Shasta College
Southwestern College
West Valley College
Yuba College

Attachment B
Effective Practices Interviews

Intro script for team

"As part of the California Community Colleges Chancellor's Office technology initiatives, the @ONE project is designed to help faculty effectively integrate technology into instruction and services. The grant to fiscal agent De Anza College will:

- provide faculty training in appropriate technologies
- provide on-line resources and information on educational technology; and
- address policy and administrative issues at the local and state levels that impact the use of technology in instruction.

The needs assessment I am involved with is a first step to the development and implementation of a training plan for the California Community Colleges. The purpose of this interview is to collect information about the things you do, steps you take, to ensure successful outcomes in your program/courses. How you use the technology and what you do (strategies) to enhance the effectiveness of the technology."

Questions:

1. Describe this educational technology from the perspective of the students. What are the main components that they see, interact with?

2. Do you see the major focus of your job (the way you spend your time) changing as a result of using this technology? If so, what do you do differently?

Prompt: Now we are going to focus on different strategies that impact outcome measures such as grades and pass rates; course completion rates; and student satisfaction.

3. Describe the steps/actions (process) you take to ensure student learning and success, retention, and satisfaction? What specifically do you do? We are interested in the use of the technology to impact outcomes and also non technology actions making technology more effective. Please walk me through the steps.

4. Are there any other steps or actions [process] which you believe you could be taking in support of student learning, retention and satisfaction that you are not currently taking?

5. How do you know that you have accomplished student learning, retention, and satisfaction? What criteria do you use to determine the result was a success?

Prompt: Now we are going to look at what factors help and hinder your success.

6. What work environment factors or institutional impediments do you encounter that make it difficult for you to be successful in reaching these results?

7. What environmental/institutional factors or initiatives help you accomplish these results?

Access and Training

8. Are more students able to take this course (class, program, etc.) because of the technology you are using?

9. What specifically has this institution done to ensure student access to this technology from the perspective of:
    a) availability of equipment (on-campus and/or off-campus)?
    b) preparation for use or training?
    c) ongoing technical support, troubleshooting support?

10. What specifically has this institution done to ensure "access" for full-time faculty (address part-time faculty after this) to this technology from the perspective of:
    a) availability of equipment to faculty in their offices, classrooms, computer labs and off campus settings?
    b) training?
    c) time to learn, develop and evaluate instructional technology use and materials?
    d) ongoing technical and troubleshooting support.
    e) other incentives, enablers not mentioned?

11. Does the faculty training provided meet the needs of faculty? Describe your experience with it.
    a) How could it be improved?
    b) How is training provided to adjunct faculty?
    c) How is the effectiveness of training evaluated?

12. If faculty training is provided, describe your experience with it.
    a) How could it be improved?
    b) How is the effectiveness of training evaluated?
    c) Do you have a written description of the training for faculty, including content, that I could have?

Benefits

13. Are there any benefits of this technology from a student's perspective, instructor's perspective, administration's perspective that you have not mentioned?

Recommendations

14. What do YOU think needs to be done or changed at (name their institution) to encourage and foster faculty members to acquire the skills and resources they need to effectively incorporate technology into their instruction?

15. What is the first level of implementation you'd suggest for faculty who are interested in beginning to use this technology?"

Documentation and Literature

16. Can you provide a report or document(s) containing the outcome measures which we have discussed?

17. Do you have any written information describing your use of this technology and/or effective practices?

18. Are there other institutions that you are aware of that are doing an exemplary job with this technology? Which ones?

Attachment C
Focus Group Questions

Section A: Instructional faculty

1. What are the educational technology arenas that will be most meaningful to community college instruction in the next few years?
2. For instruction, what outcome measures/performance measures do you think should be tracked in order to determine if the use of educational technology is "effective"?
3. Please identify some of the reasons why you believe faculty do not use educational technology.

Section B: Student Services

4. For CC student services, what use of technology will be most important in the next few years?.
5. For the student services use of technology, what outcome measures/performance measures do you think should be tracked in order to determine if the use of educational technology is "effective"?

Section C: Libraries or LRC librarians/staff

6. In your community college library or LRC, what use of technology will be most important in the next few years years?
7. For the library (LRC) services technology, what outcome measures/performance measures do you think should be tracked in order to determine if the use of educational technology is "effective"?

Attachment D

4C@One Instructional Technology Survey

General Overview

Instructions:

Please fill in the bubble that indicates the extent to which you believe the use of technology will impact instruction, teaching and learning.

	No opinion	Not at all	Somewhat	Much	Very Much
To what extent do you think that:					
1. the use of technology will change the way you teach academic courses within the next five years?	○	○	○	○	○
2. increasing your ability to apply technology to your instruction is part of your job?	○	○	○	○	○
3. the use of technology will enable you to reach more students?	○	○	○	○	○
4. the use of technology will enable you to address the different learning styles of your students more effectively?	○	○	○	○	○
5. the use of technology will enable you to address individual student interests more effectively?	○	○	○	○	○
6. lack of access to appropriate equipment at your community college is an impediment to your ability to integrate technology into your classes?	○	○	○	○	○
7. the use of technology will enable you to design activities that increase students' retention of information?	○	○	○	○	○
8. the use of technology will enable you to design activities that increase students' ability to analyze, use, and apply information to new situations?	○	○	○	○	○
9. the use of technology will enable you to provide your students with individualized feedback?	○	○	○	○	○
10. the use of technology will enable you to provide students with more real life simulations?	○	○	○	○	○
11. electronic bulletin boards are useful tools for providing information on training opportunities, exchanging ideas with fellow faculty members, or for posting of questions of interest to community college instructors?	○	○	○	○	○

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Current Use of Technology

Instructions

For items 12-26 use the following criteria:

Level of Importance to Instruction

1 = Not important to instruction and student outcomes
2 = Moderately important to instruction and student outcomes
3 = Important to instruction and student outcomes

Level of Use

4 = Do not use
5 = Currently use

Level of Proficiency

6 = Minimal skill: You have no skill or demonstrate limited skill in performing the activity in routine situations, or need help to do so.

7 = Adequate skill: You demonstrate skill in performing the activity in routine situations without help, but in unusual or non-routine situations you need help.

8 = Proficient skill: You constantly demonstrate skill in performing the activity even in unusual and non-routine situations.

9 = Expert skill: You are among the very best at performing the activity; others come to you for assistance and coaching in how to do this activity.

Rate the importance to instruction and your use. Indicate your skill level if appropriate.

	Instructional Importance			*Level of Use*		*Your Skill Level*			
	Not important (1)	Moderately Important (2)	Important (3)	Don't Use (4)	Currently Use (5)	Minimal Skill (6)	Adequate Skill (7)	Proficient Skill (8)	Expert Skill (9)
12. I use e-mail to exchange information with colleagues									
13. I use e-mail for personal communications with students									
14. I provide activities that encourage my students to use e-mail for group work									
15. I use web-based message boards to post students' e-mail to questions of general interest for class									
16. I use a web site to post syllabi, assignments, and notes for my students									
17. I maintain a Web site for my classes									
18. I develop instructional units which require students to use the Internet									

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	Not important (1)	Moderately Important (2)	Important (3)	Don't Use (4)	Currently Use (5)	Minimal Skill (6)	Adequate Skill (7)	Proficient Skill (8)	Expert Skill (9)
19. I use the Web to stay informed of changes within my discipline									
20. I use the Internet to locate Web sites that might be of interest to my students									
21. I use computer simulations to provide students with interactive learning environments and/or problem solving opportunities									
22. I use multimedia such as CD-ROM, videos, and PowerPoint/Persuasion presentations to make class lectures more interesting									
23. I assign students projects that require the integration of mulimedia for their presentations									
24. I create course-specific computer activities for students									
25. I use computer tutorials to reinforce instruction									
26. I offer an on-line course									

	Do not know	Disagree	Somewhat disagree	Somewhat agree	Agree
27. At my college, computers sufficient for faculty needs are available in faculty offices.					
28. At my college, equipment necessary to produce multimedia presentations is available and accessible to the faculty.					
29. There are a sufficient number of computers in classrooms and computer labs to meet student needs.					
30. At my college, there is sufficient technical computer support available to meet faculty needs.					
31. At my college, computers in the computer labs are well maintained.					
32. At my college, call-in technical support is available for all faculty.					
33. At my college, software is regularly upgraded as needed.					

	Do not know	Disagree	Somewhat disagree	Somewhat agree	Agree
34. My college provides all students with an e-mail account.					
35. At my college, we have a person who maintains and updates Web sites for faculty members.					
36. At my college, instructors receive release time, flex credit and/or compensation to develop on-line courses.					
37. At my college, instructors receive release time and/or compensation to attend technology training.					
38. At my college, the extra amount of time spent by an instructor on instruction related activities (such as answering e-mail messages, posting notes on a bulletin board or maintaining a current Web page) is taken into consideration in course-load allocation.					
39. At my college, adjunct faculty are compensated, financially or otherwise, for attending technology training related to their instructional field.					
40. At my college, faculty are compensated for time spent in developing and incorporating technology into their curriculum.					
41. My college has a well developed campus-wide, coherent technology plan.					
42. My department has its own technology plan to which I was encouraged to give input.					
43. My department has an adequate budget to purchase software which enhances instruction.					

Training

	Yes	No
The following training is frequently available to faculty and staff on my campus:		
44. How to use the Internet		
45. How to use e-mail		
46. How to do group addressing for e-mail and WWW discussions		
47. How to use PowerPoint or another presentation program		
48. How to use word processing programs		
49. How to set up and maintain data bases		
50. How to use a publishing program such as Pagemaker or Quark		
51. How to use spreadsheets		
52. How to use peripherals such as CD-ROM, scanners, and video disks		
53. How to use applications/programs specific to my discipline		

		Not interested	A little interested	Very interested
I would be interested in attending training on:				
54.	how to design and integrate multi-media presentations, such as PowerPoint, CD-ROM clips and video into my classroom instruction.			
55.	how to incorporate commercially available multimedia products into my classroom instruction.			
56.	how to design computer-aided instruction and/or activities for my classes.			
57.	how technology can be used to facilitate small group activities and teamwork among my students.			
58.	how technology can be used to increase the scope and depth of student research.			
59.	how to design classroom activities that require students to use various technology tools in completing their assignments.			
60.	how to integrate computer simulations specific to my discipline into classroom instruction.			
61.	how to use technology to integrate higher level thinking skills into instructional practices.			
62.	how to use technology to address different learning styles.			
63.	how to use technology to increase students' retention of information.			
64.	how to use technology to individualize instruction based on student interests.			
65.	how to convert a course I currently teach into an on-line course.			

		Unacceptable	Acceptable	Preferred
Please rate the following training options in terms of your preference:				
66.	Hands-on training that requires development of a relevant product, such as a Web site, an instructional unit incorporating technology, etc.			
67.	Demonstration of effective uses of instructional technology			
68.	Demonstration of effective uses of instructional technology specific to my discipline			
69.	One-on-one training by a mentor			
70.	Consultation with a content expert who has incorporated technology into his or her instruction			
71.	Training by Community College faculty who effectively use technology in my discipline			
72.	Training by an experienced trainer with depth of knowledge in instructional technology			
73.	Training via a web-based on-line course			
74.	Training via video conferencing			
75.	Day long sessions			
76.	Half day sessions			
77.	Weekend and/or evening sessions			

	Unacceptable	Acceptable	Preferred
78. Sessions scheduled over several weeks of time			
79. Flex days used for training			
80. Peer support/problem solving group as follow-up after training			
81. Consultation with an expert as follow-up after training			
82. Internet chat room meetings with others who also attended training			

83. Assuming content and speaker/trainer are of interest, what is the furthest you would be willing to travel?
   - not beyond my campus
   - 30 miles or less
   - 31 to 60 miles
   - 61 to 100 miles
   - more than 100 miles

Current status

84. What is your status?
   - Full time
   - Part time

Gender

85. What is your gender?
   - Female
   - Male

Ethnic Background

86. What is your ethnic background?
   - Black, not Hispanic
   - American Indian
   - White, not Hispanic
   - Hispanic
   - Asian, Pacific Islander
   - Other

Age

87. What is your age?
   - Under 35
   - 36-50
   - 51+

Years teaching

88. What is the total number of years you have been teaching?
   - 1-10
   - 11-20
   - 21+

Please fill in your discipline below:

Discipline:_____

General Information:

89. Do you have a computer at home?

Yes No No, but I intend to buy one

90. If you use any discipline specific commercial software in your classroom which you believe to be effective, please list, along with the course in which it is used.

software:_____

course:_____

software:_____

course:_____

91. Please list below any unique uses of technology in your classroom which you believe positively impact student outcomes.

I use_____ _____

in the field of_____

with the following positive outcomes:

_____

_____

92. I would attend the following instructional technology training if it were available:

_____

_____

Please return to your college contact in the envelope provided or the President's office by February 6, 1998.

90. For official use only